Release Notes

PROIV Version 12.100

Winter 2023 Release

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Document Control Information

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12.100	Winter 2023	First release of version 12 (12.100)

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1 Introduction

1.1 Document Structure

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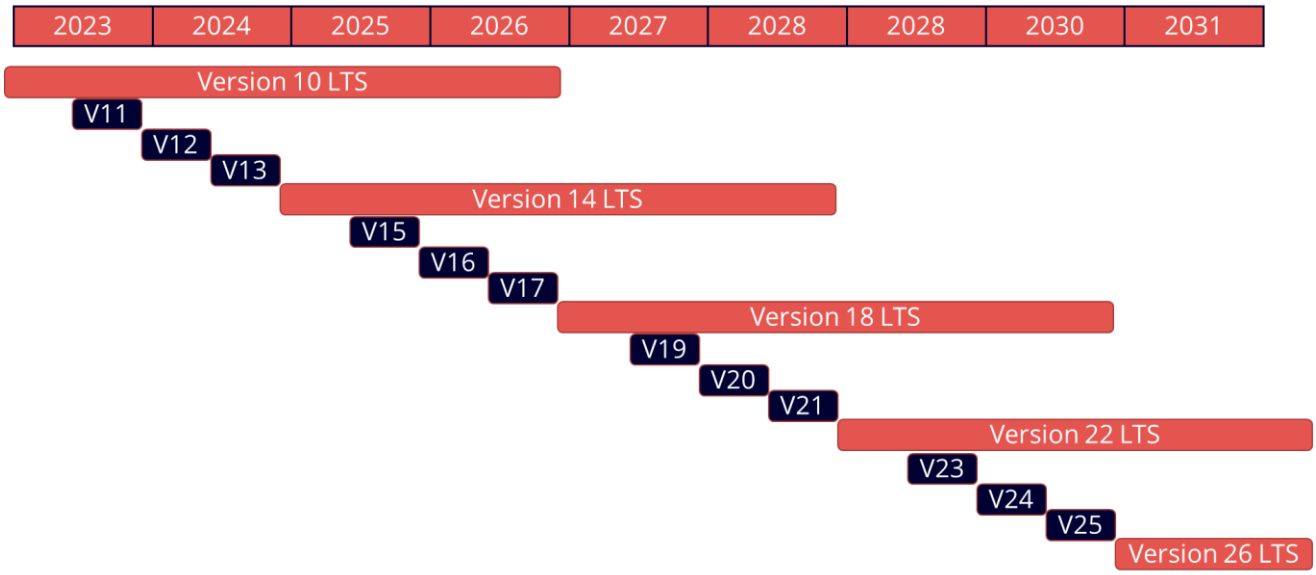
1.2 Changes to the PROIV Release Cycle

As of version 11; Zellis has changed how it releases major versions of PROIV. Going forward there will be a major release of PROIV every six months that will introduce new technology and features to the product for those customers who wish to take advantage of them straight away. These more frequent releases will only be supported until the next major release.

For those customers who prefer longevity of a PROIV release, Zellis has designated selected major releases as Long-Term Support (LTS) versions. This is currently version 10 and this will be supported with some overlap until the next LTS release which will be version 14. All the new technologies and features introduced in the interim releases will be rolled up into this new LTS version.



The above chart shows the anticipated release schedule until the end of 2031. All versions will continue to have monthly service releases where required.

1.3 Installing the PROIV Application

Information on installing PROIV is held in the latest PROIV Install guide for version 12 which can be found in the Documentation page on the PROIV Support Web-site.

2 System requirements

2.1 End of Life Information

The following components, platforms and databases are end-of-life or will be soon. With this release of PROIV version 11 is no longer supported, you should upgrade to version 12 as soon as possible.

2.1.1 Deprecated Functionality

The following PROIV Functionality is deprecated and will be removed from a future version of PROIV.

- PROIV Aurora
- External Sub-routines
- C-ISAM

2.1.2 Forthcoming End-of-Life Notices

The following notices are given regarding forthcoming End-of-Life of currently supported platforms, PROIV Components and Databases.

- SQL Server 2016 (Windows) – 31st March 2024
- Windows Server 2016 – 31st March 2024

2.1.3 End-of-Life Notices

The following are now end-of-life and not supported in version 12, this also includes any earlier versions than those listed and those stated as end of life in earlier versions of the release notes.

Databases:

- PostgreSQL version 11

2.2 Supported Platforms and Databases

This section lists the currently supported operating environments for PROIV and supersedes all other documents.

The following table provides details about the compatibility of system requirements, platforms, databases and browsers for PROIV v12 components. For the installation process, refer to the latest update of the PROIV v12 Installation guide.

PROIV Version 12.100 Server Supported Platforms							
Platform				Database Interfaces			
				Oracle	SQL Server	PostgreSQL	C-ISAM
OS Name	Arch	Min OS	Max OS	19c 21c	2016, 2018 thru 2022 Azure SQL	12 thru 16	7.26
Windows Server	64-bit	2016	2022	✓	✓	✓	
Windows Workstation	64-bit	10	11	✓	✓	✓	
Redhat Enterprise Linux	64-bit x64	8	9	✓	✓	✓	✓
AIX	Power8	AIX 7.2	AIX7.2	✓			✓

Notes

1. PROIV with SQL Server on Linux has very specific software requirements, it requires a minimum of unixODBC 2.3.7 and the Microsoft SQL Server Linux version 18 driver commonly known as msodbcsql18.
2. Support is provided for SQL Server running on Linux and on Windows with the supported versions and combinations supported by Microsoft.
3. Support for Oracle databases and Operating system combinations is in line with Oracle's stated certifications as of the release date of this document.
4. Centos 8 and Centos Stream 8 are not supported.
5. Refer to forthcoming end of life dates above.

PROIV Version 12.100 Supported Client / Browser Platforms			
Platform		Browser	
OS Name	MFC Client	Microsoft Chromium	Google Chrome
Windows 10	✓	✓	✓
Windows 11	✓	✓	✓
Windows 2016		✓	✓
Windows 2019		✓	✓

Notes

1. Google Chrome is tested on the latest production releases only; pre-production releases are not supported.

2.3 MFC Client / Forms Designer Platforms

The MFC Client and Forms Designer are 32-bit applications which are compatible with the Windows 10 and 11 operating systems. Whilst the installation may be successful on other versions of Microsoft Windows, they are not supported platforms and are not tested; Zellis will not accept any fault reports or support issues on non-supported platforms.

Version 9.4 introduced a change to the way the MFC Client responded to the return key when focus was on a dynamic icon. If you wish to use the previous behaviour a new option has been added to the General Settings for the application in v9.41 onwards called “Hotspots action on CR” which will need to be checked to get the previous behaviour.

3 Getting Started with Version 12

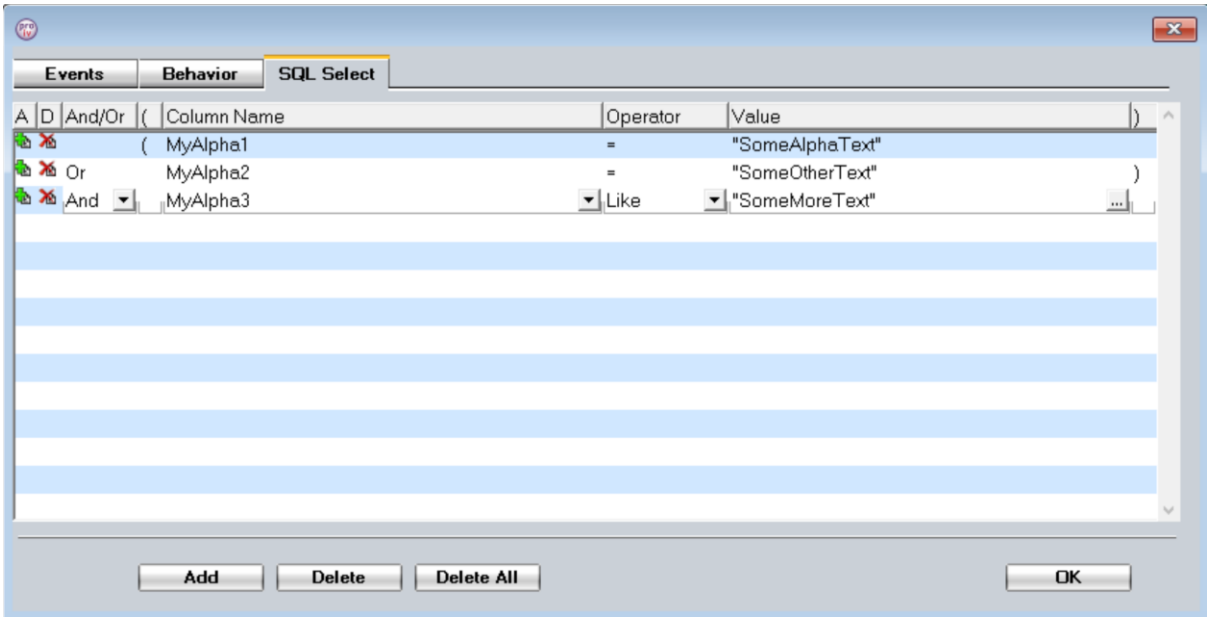
3.1 New Features 12.100

3.1.1 SQL Interface Updates

3.1.1.1 Customisable Where Clause

A new tab has been added to the File Accessor properties dialog named “SQL Select”. This allows programmers to customise the SQL used in retrieving rows from the databases used by an application. This is available to all SQL database interfaces and offers the following benefits to applications.

- Added ability to define the SQL selection criteria on the primary file accessor of a cycle.
- Build complex bracketed expressions allowing filtering of result sets.
- Faster data retrieval and lower resource usage.

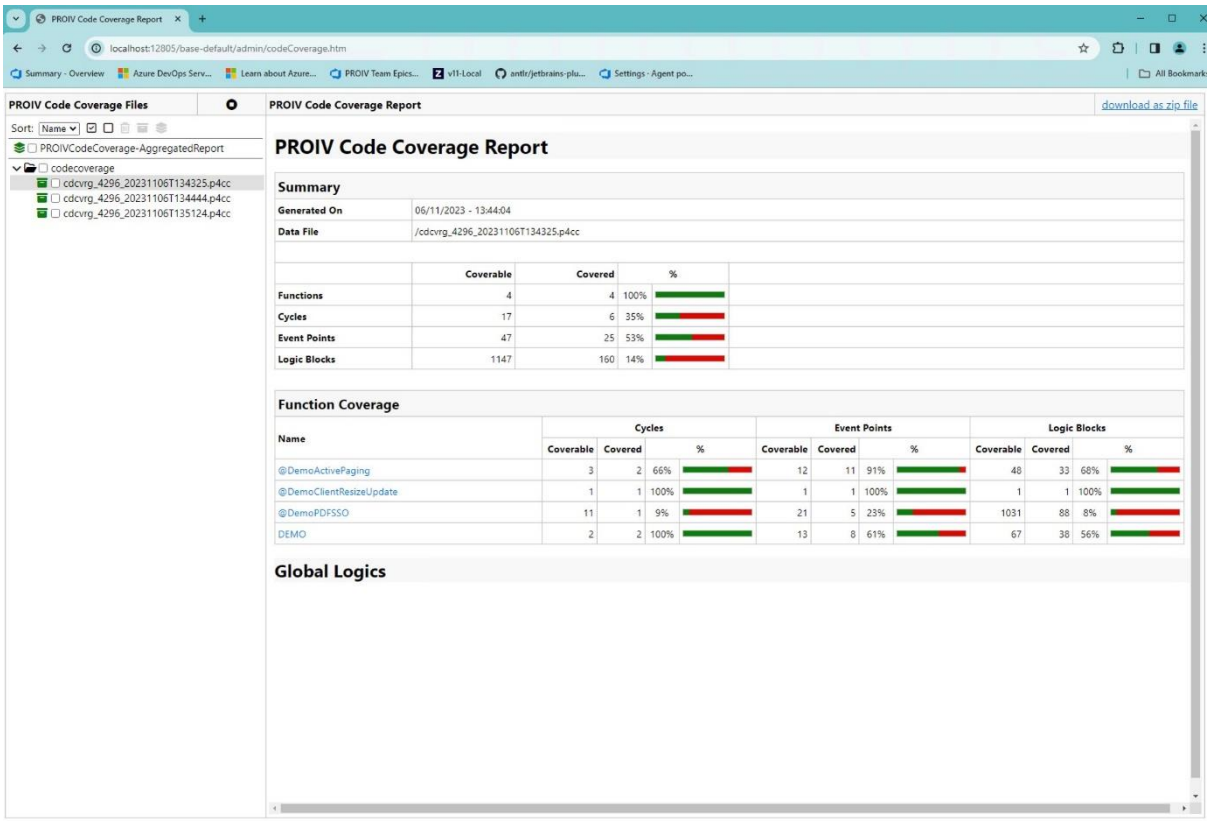


3.1.1.2 Row Set Optimisations

Multiple Active Result Sets (MARS) has been enabled on SQL Server and Azure SQL Server Database interfaces. This has resulted in an improvement in result set retrieval times. MARS is enabled through a setting in the SQL Server section of the dashboard.

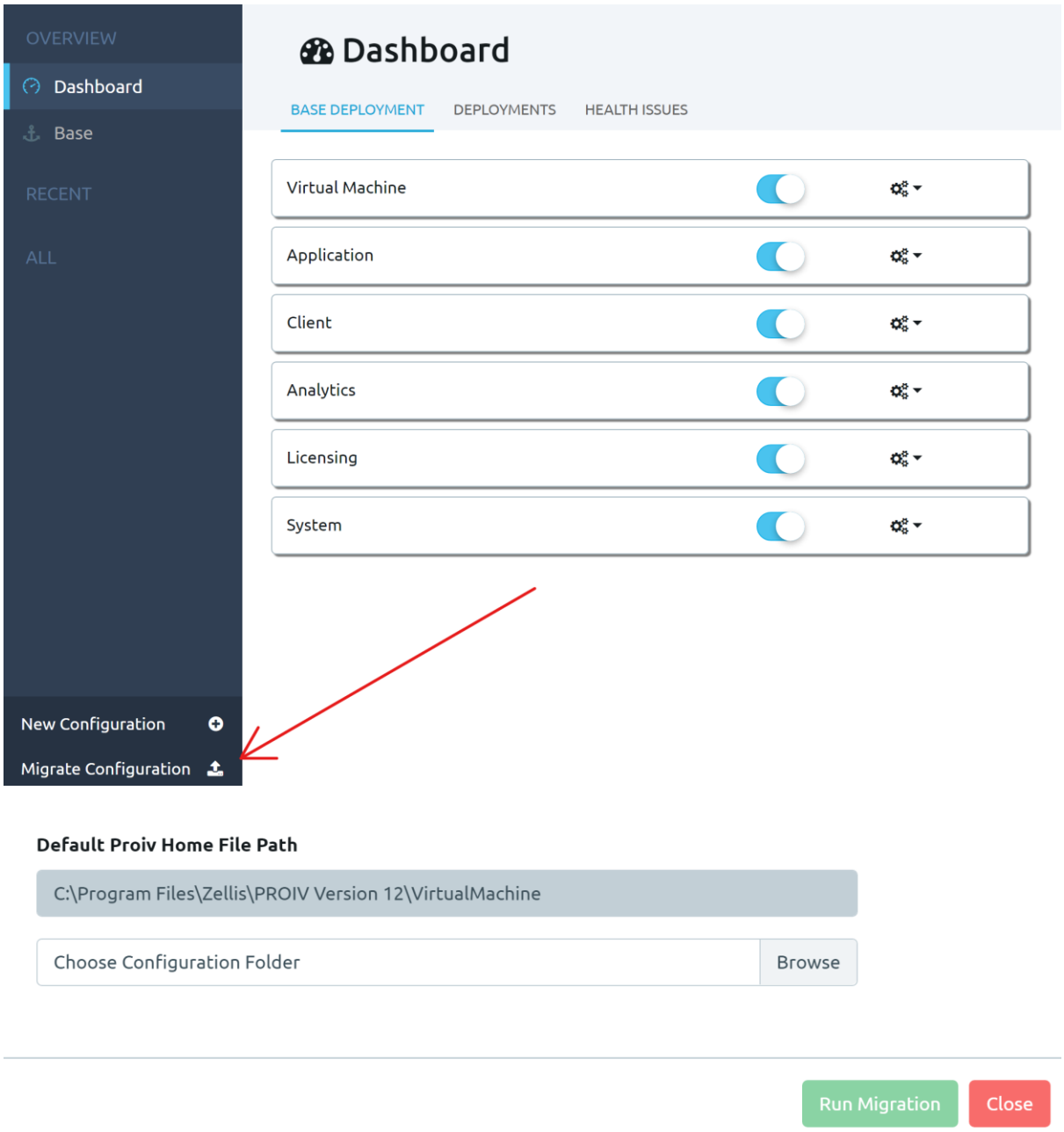
3.1.2 Application Code Coverage (Phase 2)

Phase 2 builds on the Code Coverage features introduced in version 11. Version 12 adds aggregation of multiple coverage data files allowing a holistic view of an applications coverage from multiple data sets. This new processing detects when a function with the same name may have been altered between runs and will report it separately.



3.1.3 Configuration Migration

A new feature enabling easier migration of configurations between different releases of PROIV has been added. The new functionality can be found in the PROIV Dashboard. To import from an earlier release, navigate the migration tool to a version 10 or 11 folder containing their configuration files.



3.1.4 Miscellaneous changes

3.1.4.1 New folder for fonts used in CSS

The application resources used in the Open Client has a new sub folder called appFonts. This is used to load fonts required by the application CSS. The CSS file should reference the fonts as shown below. E.g. The file montserrat-regular.ttf should be in the appFonts folder.

```
@font-face {
  font-family: Montserrat;
  src: url('montserrat-regular.ttf');
}
```

3.1.4.2 Page orientation control for PDF SSO

A new method has been added to the PDF SSO to allow setting of the page orientation to Portrait or Landscape.

setPdfDefaultOrientation (imap)

Valid values for the orientation are ‘L’ for landscape and ‘P’ for portrait.

4 Component specific Information

4.1 Client Connector

4.1.1 Aurora

4.1.1.1 URL To Access Aurora

The URL to access Aurora depends on the port number provided during the installation of PROIV. The default port number is 12804 and the full URL is:

http://<host>:12804/base-default/aurora

Where <host> is the fully qualified domain name of the server on which you have installed PROIV.

4.1.1.2 Browser Security when using Aurora and the Open Client

Changes in browser security mean that cookies with the same name cannot be used in both HTTPS and HTTP requests. This means that if you have a HTTPS Aurora session and you try to open a HTTP Open Client session then the Open Client session will fail with a 404 error. In order to use both Aurora and Open Client in the same browser they must both use the same protocol either both HTTPS or both HTTP.

4.2 Application Connector

Application Connector has no differences from version 11.

4.3 Analytics

Analytics now includes Application Code Coverage reporting.

4.4 Licensing

Licensing has no differences from version 11 other than the requirement for a specific version 12 licence on the selected licence server.

4.5 Dashboard

The Dashboard (System Services) has no major differences over version 11 except for the ability to configure the generation and capture of code coverage meta data.

5 Platform and Database specific Information

Note: Prior to upgrading PROIV Server software on any platform it is essential that all users and Web Services are disconnected from the system to prevent various system locks from blocking the installation of essential components during the upgrade process. This includes connections from the Windows Client, Open Client and Lite Client. Any system that connects via SOAP or RESTful Web Services should also be temporarily disabled.

5.1 64-bit Linux

This release is supported on Linux operating systems as per the supported platforms section above. It is very important that the operating system has all vendor-supplied patches installed.

5.1.1 Security Enhanced Linux (SELinux)

If installing as non-root user on SELinux the PROIV web services may not start automatically. If this is the case, they will need to be started manually by a user with root privileges for each of the services, e.g.

$ cd <install-path>/LicensingServices/bin

$ ./licensingServices start

See also Section 7 for Known Issues regarding limitations on <install-path>.

5.1.2 Supported Java Runtime Environments

PROIV on 64-bit Linux (glibc) is bundled with the Microsoft JRE Version 17, the installation uses this, there is no option to search for a different JRE during installation.

5.1.3 PostgreSQL

The solution makes use of native PostgreSQL database drivers making it easier to configure. The drivers required by PROIV on the Linux platform can be found in the following directory which is included in the LD_LIBRARY_PATH environment variable in the runproiv.sh script:

$PROIV_HOME/virtual_machine/lib

An issue may be seen on RedHat Enterprise Linux version 8 with the native PostgreSQL library, libpq, which has a dependency on /lib64/libkrb5.so.3. This in turn, requires an older version of OpenSSL (OPENSSL_1_1_1b) which is contained in /lib64/libcrypto.so.1.1. If the PROIV /lib/libcurl library is on the search path first then the loader looks in /lib/libcurl/libcrypto.so.1.1 which has OPENSSL_1_1_1k. This fails to satisfy the dependency for libpq. The solution is to remove $(proiv_base)/lib/libcurl from the line setting LD_LIBRARY_PATH in the runproiv.sh script.

5.1.4 Oracle

The Linux platform includes the Oracle 19c Instant client, it can be found in the directory of your installation as shown below. This directory is added to the LD_LIBRARY_PATH environment variable as part of the ***runproiv.sh*** script. The Oracle 19c Instant Client is the minimum version required on 64-bit Linux platforms.

$PROIV_HOME/virtual_machine/lib/instant_client

Oracle performance is much better if the Oracle connection information is specified by an Oracle System Identifier (SID). Specify the name of the SID by exporting ORACLE_SID in your PROIV start-up script. The Connection string then only needs to specify username/password.

5.1.5 SQL Server

Support for SQL Server is enabled through unixODBC. The unixODBC shared libraries must be added to the LD_LIBRARY_PATH in the ***runproiv.sh*** script; failure to do so will result in the PROIV SQL Server interface not initialising correctly. By default after rpm installation of unixODBC these libraries are usually part of standard system library paths.

There are specific version requirements for unixODBC and the Microsoft odbc driver, please refer to the section above.

Access to SQL Server is via an ODBC DSN (Data Source Name), these are configured as per the unixODBC documentation. By way of example; the configuration is a two part process; first the unixODBC driver manager needs to know about the Microsoft Linux ODBC Driver; this is typically done by adding a section similar to:

```
[ODBC Driver 17 for SQL Server]
Description=Microsoft ODBC Driver 17 for SQL Server
Driver=/opt/microsoft/msodbcsql17/lib64/libmsodbcsql-17.3.so.1.1
UsageCount=1
```

To the `/etc/odbcinst.ini` file.

The data source is then configured; this can either be a system data source in which the system config file `/etc/odbc.ini` or the users specific `.odbc.ini` located in their home directory. The content would include a section similar to the following:

```
[Stock]
Driver = ODBC Driver 17 for SQL Server
Server = localhost,1433
Description = Stock Control Database
```

In this case the Stock data source is defined as being on server local host accessible on port 1433.

To configure PROIV to access the database as the default SQL database you would set the connection string to

username/**password**/Stock

where username and password are replaced with the correct credentials for the database.

5.1.6 Integration with “systemd” services

From release 12.100 the names of the “systemd “services have been updated to avoid clashes with PROIV Versions 10 and 11. The new names are listed below.

- p4analytics12.service
- p4appcon12.service
- p4clicon12.service
- p4licensing12.service
- p4system12.service
- p4taskserver12.service

On a clean install the systemd unit files will be created with these new names.

5.2 AIX

This release is supported on AIX operating systems as per the supported platforms section above. It is very important that the operating system has all vendor-supplied patches installed. See the Supported Platforms section for the currently supported Technology levels.

5.2.1 Supported Java Runtime Environments

PROIV on 64-bit AIX only supports the IBM Java 17 JDK. The installation process initially refers to the path that is set in the JAVA_HOME variable; in case this is not found, it looks in the following directories (as defined using a regular expression) for a Java 17 JDK and will use it in preference as it is found.

/usr/*[jJ][aA][vV][aA]*17*	/opt/*[jJ][aA][vV][aA]*17*
/usr/*[jJ]2[sS][Ee]*	/opt/*[jJ]2[sS][Ee]*
/usr/*[jJ][dD][kK]*	/opt/*[jJ][dD][kK]*
/usr/*[jJ][aA][vV][aA]*	/opt/*[jJ][aA][vV][aA]*

/usr/*[jJ][aA][vV][aA]*/*[jJ]2*	/opt/*[jJ][aA][vV][aA]*/*[jJ]2*
/opt/*[jJ]2*	/usr/*[jJ]2*

5.2.2 Oracle

The AIX platform includes the Oracle 19c Instant client, it can be found in the $PROIV_HOME/virtual_machine/lib/instant_client directory of your installation. This directory is added to the LD_LIBRARY_PATH environment variable as part of the ***runproiv.sh*** script.

Oracle may generate a warning return code "*ORA-24347*" when NULL columns are used in aggregate functions. This happens for all PROIV V8 and V9 versions. PROIV regards the warning as an error and rolls back the transaction. Within PROIV, this is only likely to happen with full function SQL.

You can instruct PROIV to ignore the Oracle warning by disabling the Enable Warnings As Error switch in the Oracle section of the Virtual Machine configuration in the PROIV Dashboard.

Oracle performance is much better if the Oracle connection information is specified by an Oracle System Identifier (SID). Specify the name of the SID by exporting ORACLE_SID in your PROIV start-up script. The Connection string then only needs to specify username/password.

5.3 64-bit Windows

This release is supported on Windows operating systems as per the supported platforms section above. It is very important that the operating system has all vendor-supplied patches installed.

5.3.1 Supported Java Runtime Environments

The 64-bit Windows installation is bundled with a Microsoft Java 17 Runtime Environment.

5.3.2 PostgreSQL

The solution makes use of native PostgreSQL database drivers (libpq). If you wish to use PostgreSQL as your database you will need to download and install the PostgreSQL software from https://www.postgresql.org/. The Windows "Path" environment variable should be modified to include the paths to the PostgreSQL lib and bin folders.

5.4 Operating System Authentication to connect PROIV with Oracle database

On UNIX platforms, PROIV supports user authentication to establish connection between PROIV sessions and an Oracle database. You can configure an Oracle Database to authenticate (that is, verify the identity of) users or other entities that connect to the database. Authentication must be configured in two ways, such as through the PROIV application and from the Oracle database.

On the PROIV side, the username and/or password provided in the PROIV Dashboard settings should be blank. On the Oracle database side, you must set Oracle configuration to allow OS authentication. For more information, refer to Oracle documentation.

This will not affect standard database authentication of credentials, however should problems arise it is possible to connect using the existing method by setting the OCI Simple Logon property in the PROIV Dashboard. This cannot be used with OS authentication.

5.5 File System Support

PROIV is not supported on shared file systems such as SAMBA (SMB/CIFS), or NFS.

6 Common Vulnerabilities and Exposures

This release of PROIV includes fixes for all the CVEs listed below and those fixed in previous versions up to release 11.105. It is recommended that all components are upgraded to this version.

6.1 CVEs Addressed for version 12.100.35

CVE Number	Description
CVE-2023-4759	Arbitrary File Overwrite in Eclipse JGit
CVE-2023-5072	Denial of Service vulnerability in JSON-Java
CVE-2022-25758	All versions of package scss-tokenizer are vulnerable to Regular Expression Denial of Service (ReDoS) via the loadAnnotation() function, due to the usage of insecure regex
CVE-2022-44729	Server-Side Request Forgery vulnerability in Apache Software Foundation Apache XML Graphics Batik
CVE-2022-44730	Server-Side Request Forgery vulnerability in Apache Software Foundation Apache XML Graphics Batik
CVE-2023-45133	Using Babel/Traverse to compile code that was specifically crafted by an attacker can lead to arbitrary code execution during compilation
CVE-2023-20883	Spring boot - potential for a denial-of-service (DoS) attack if Spring MVC is used together with a reverse proxy cache.

7 Resolved Issues

This release of software includes fixes for all issues fixed in previous releases up to and including version 11.105 as well as the issues listed in the tables below. A full list of resolved issues is now available on the PROIV Support Web-site.

7.1 Resolved Issues for v12.100.35

Support Ref.	Description	PROIV Ref.
PRB0052180	Failed to read a number with more than 20 significant digits from an Oracle table	224730
PRB0052051	Modified Open Client rendition settings 'heightFactor' and 'widthFactor' are not reflected in Aurora	216946
	Screen with just radiogroups present appears to lock up	184501
	P4Task.exe has incorrect default port number	236640
	RESTful service error when the path does not start with '/'	236885
	Missing closing brace on generated SQLServer script	233220
	Accessing the Help from the Windows client can cause a repeating script error message	225954
	Upgrade completes but with reports of non-fatal errors on AIX systems	234258
	Autocomplete checkbox with return field jump, executes "After Field" logic twice	232569
	List box icons not removed from original positions following column sort	233926
	Paging "no-change" combo-box rendered as editable after a refresh & Global LS call	233943
	When LiteClient Panel Template is full screen elements are sized & positioned, incorrectly, relative to window width	234163
	SQL Error 368 reported after reading an Oracle table using page down key	233291
	SQL Server/Azure SQL primary in D mode omits the order by clause	241331

7.2 Known Issues

Configuration migration currently allows a unix configuration to be migrated on a windows installation and vice-versa. This is not supported and will corrupt your configuration so should not be attempted under any circumstances.

When the PROIV client is running with a secure connection some browsers will convert any non-secure image requests to a secure one (e.g. change http to https). If the server supplying the image does not support https then the image will not be found. Chrome and Edge do the conversion but Firefox does not. We would recommend that all images accessed by the PROIV clients as a URL use the secure protocol (https) that way they will always show in all browsers.

PROIV uses Apache FOP version 2.6 and this expects image paths to be enclosed in url format. E.g.

The following format is no longer supported

```
<xsl:attribute name="src">
<xsl:value-of select="//PdfImage"/>
</xsl:attribute>
```

And should be changed to this supported format:

```
<xsl:attribute name="src"> url('file:<xsl:value-of select="//PdfImage"/>')
</xsl:attribute>
```

The wrapper function @VIPWP03 is a run-time function which gives the user the ability to bulk build functions outside of PROIV Developer. If this function is run within the PROIV Developer then the programmer should save the value of Communication Variable 6 (@$COM6) before and restore after running the function

SELinux prevents running a system service where the binary to execute (e.g. /home/user1/v11/ClientServices/bin/clientServices) is in a user's home directory or root user's home directory. As a result, SELinux is not supported.

There is an issue running SQLPlus to Oracle databases on IBM AIX that reports errors similar to the following:

> rtld: 0712-001 Symbol CreateIoCompletionPort was referenced.

The solution is to change the IOCP IBM AIX parameter from “defined” to “available”, this action requires root privilege, further details can be found at the following URL:

> https://geodatamaster.com/2015/09/04/sqlplus-error-for-oracle-12c-in-ibm-aix-rtld-0712-001-symbol-createiocompletionport-was-referenced/

There is a difference in behaviour between the Open Client and the Windows Client when processing graphics assigned to an Icon when they are to be obtained from the internet. The Windows Client requires the internet settings to specify the URL of the graphics location on the internet and this is then used to access a file specified as the graphic for the icon. The Open Client allows the full URL, including the name of the file, to be assigned to the icon. The name of the file used for the Windows Client is case sensitive.

Over time the number of files in the temp folders of ApplicationServices and ClientServices will increase due to deploying and re-deploying configurations. You should periodically remove these files to reduce problems with disk space and the impact on the time it takes to uninstall and re-install the application.

Under Windows the @DemoFileSendRecieve demo function will not transfer files to the default boots directory if the running process does not have permission to do so.

For further information please visit zellis.com

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